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16/00

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Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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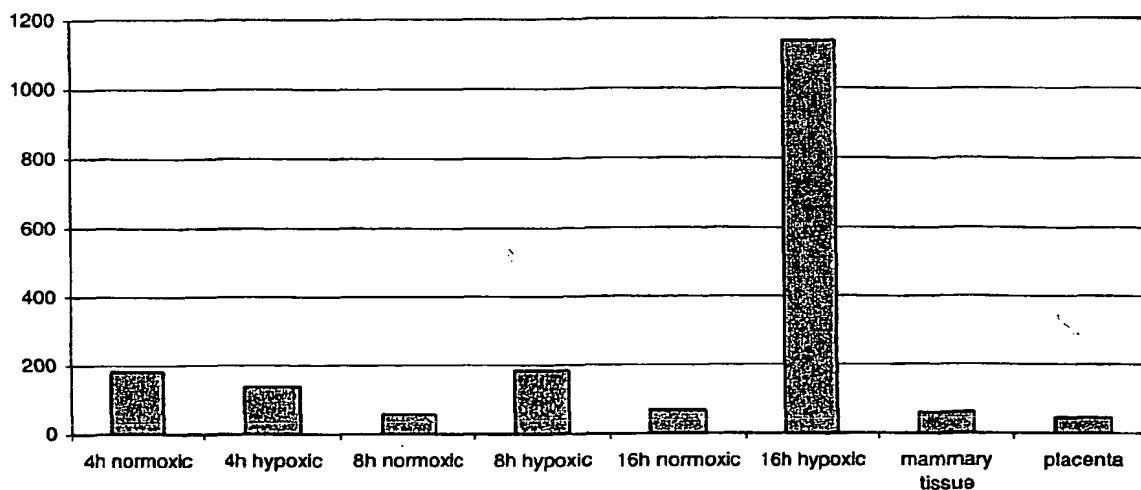
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROTEIN FOR USE IN HYPOXIA RELATED CONDITIONS



(57) Abstract: The present invention relates to new uses of Solute Carrier 6 (SC6), a taurine transporter, in the diagnosis, screening, treatment and prophylaxis of hypoxia related conditions *e.g.* cancer. Compositions comprising the protein, such as vaccines and agents that modulate the protein expression or activity, including antibodies that are immunospecific for the protein, are also provided.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P0114-W001	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 03/ 01443	International filing date (day/month/year) 02/04/2003	(Earliest) Priority Date (day/month/year) 02/04/2002
Applicant OXFORD GLYSCSCIENCES (UK) LTD		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☒ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:
SC6 FOR DIAGNOSIS OF HYPOXIA RELATED CONDITIONS

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 03/01443

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/68 G01N33/574 C12Q1/68 A61K38/00 A61K39/00
A61K48/00 C07K16/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, BIOSIS, EMBASE, SEQUENCE SEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 90148 A (INCYTE GENOMICS INC; PATTERSON CHANDRA (US); TRIBOULEY CATHERINE M) 29 November 2001 (2001-11-29) Seq ID 5 and 11 are SC6 page 59, line 16-23; claims 10,25-27-56; tables 5,6	3,6,7,12
X	EP 0 982 400 A (SMITHKLINE BEECHAM PLC) 1 March 2000 (2000-03-01) claims 1-17	3,7,12
X	WO 93 18143 A (SYNAPTIC PHARMA CORP) 16 September 1993 (1993-09-16) Seq ID 5 & 6 claims 7,20,63,101,102,140	3,6,7,12
	-/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

9 December 2003

Date of mailing of the international search report

30/12/2003

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Publication No

PCT/GB 03/01443

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL 'Online! EBI; 1 February 1993 (1993-02-01) JHIANG S M ET AL: "taurine transporter" retrieved from HTTP://SRS.EBI.AC.UK, accession no. HSTAUTRAN Database accession no. Z18956.1 XP002264290 abstract	12
A	----- TIRUPPATHI CHINNASWAMY ET AL: "Constitutive expression of the taurine transporter in a human colon carcinoma cell line" AMERICAN JOURNAL OF PHYSIOLOGY, vol. 263, no. 5 PART 1, 1992, pages G625-G631, XP008025250 ISSN: 0002-9513 the whole document	1-8, 11-15
A	----- HAN XIAOBIN ET AL: "Is TauT a target gene of the WT1 tumor suppressor gene?" JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY, vol. 11, no. Program and Abstract Issue, September 2000 (2000-09), pages 43A-44A, XP008025331 33rd Annual Meeting of the American Society of Nephrology and the 2000 Renal Week; Toronto, Ontario, Canada; October 10-16, 2000 ISSN: 1046-6673 abstract	1-8, 11-15
A	----- HAN XIAOBIN ET AL: "Regulation of the taurine transporter gene (TauT) by the WT1 tumor suppressor gene" PEDIATRIC RESEARCH, vol. 47, no. 4 Part 2, April 2000 (2000-04), page 447A XP008025332 Joint Meeting of the Pediatric Academic Societies and the American Academy of Pediatrics.; Boston, Massachusetts, USA; May 12-16, 2000 ISSN: 0031-3998 abstract	1-8, 11-15
P,X	----- WO 02 064798 A (BAIS ANTHONY JOHN ; BIONOMICS LTD (AU); CALLEN DAVID FREDERICK (AU)) 22 August 2002 (2002-08-22) claims 1-69 ----- -/--	1-8, 11-15

INTERNATIONAL SEARCH REPORT

International Application No

PCT/Gb 03/01443

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 02 098467 A (PLOWMAN GREGORY D ;BELVIN MARCIA (US); FRIEDMAN LORI (US); EXELIXI) 12 December 2002 (2002-12-12) page 12 -page 29; claims 6,23,24 -----	1-8, 11-15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/01443

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 10 'completely! and 13-15 'partially!
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
2. ☒ Claims Nos.: 9 'completely! and 10-12 'partially!
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 03 01443

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 9 'completely! and 10-12 'partially!

Present claims 9-12 relate to an agent defined by reference to a desirable characteristic or property, namely its ability to down regulate SC6 expression.

The claims cover all agents having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for none of such agents. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the agents by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the SC6 polypeptides as defined in claim 1 and nucleic acids as defined in claim 2.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

Information on patent family members

PCT/GB 03/01443

Form PCT/ISA/210 (patent family annex) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International

Publication No

PCT/GB 03/01443

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 02098467	A	WO 02099125 A1	12-12-2002
		WO 02099060 A2	12-12-2002
		WO 02099068 A2	12-12-2002
		WO 02099074 A2	12-12-2002
		WO 02099075 A2	12-12-2002
		WO 02099083 A2	12-12-2002
		US 2003165497 A1	04-09-2003
		US 2003036076 A1	20-02-2003
		US 2003013144 A1	16-01-2003
		US 2002192695 A1	19-12-2002
		US 2003165809 A1	04-09-2003
		US 2003087266 A1	08-05-2003
		US 2003027188 A1	06-02-2003
		US 2003017489 A1	23-01-2003